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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,627	07/15/2003	Sungskwon C. Hong	M4065.0956/P956	5664
24998	7590	08/15/2005	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			PRENTY, MARK V	
2101 L Street, NW			ART UNIT	
Washington, DC 20037			PAPER NUMBER	
			2822	

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/618,627	<b>Applicant(s)</b> HONG, SUNGKWON C.	
	<b>Examiner</b> MARK PRENTY	<b>Art Unit</b> 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 15-17 and 26-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-17 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 29 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. <u>20050810</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____.  |

This Office Action is in response to the amendment filed on August 4, 2005. That amendment has been entered.

Claims 15-17 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by newly cited United States Patent 4,811,371 to Tower.

With respect to independent claim 15, Tower discloses a method of forming a pixel (see the entire patent, including the Fig. 1 disclosure), comprising: forming a photosensor on the substrate, said photosensor detecting and storing photon energy; forming a transfer transistor having a gate 16 on said substrate and adjacent said photosensor; forming a reset transistor having a gate 19 on said substrate and on a side of said transfer transistor gate opposite said photosensor; forming a floating diffusion region 5 on said substrate and between said transfer and reset transistor gates; and forming a gate capacitor 17 over said substrate, the gate capacitor being located between said transfer and reset transistor gates and electrically connected to the floating diffusion region.

Claim 15 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Tower.

With respect to dependent claim 16, Tower's gate capacitor 17 is formed over a portion of said floating gate diffusion region 5 and an active area of said substrate.

Claim 16 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Tower.

With respect to independent claim 17, Tower discloses a pixel of an imager (see the entire patent, including the Fig. 1 disclosure), said pixel comprising: a photosensing region which receive incident light and generates photoelectric charges; a transfer transistor having a gate 16 on said substrate and adjacent said photosensor; a reset

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transistor having a gate 19 on said substrate and on a side of said transfer transistor gate opposite said photosensor; a diffusion region 5 for receiving photogenerated charges from said photosensing region, said diffusion region being between said transfer and reset transistor gates; and at least one capacitor switchably operable to increase capacitance of said diffusion region, said capacitor having a gate 17 located between said transfer and reset transistor gates.

Claim 17 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Tower.

With respect to independent claim 26, Tower discloses a CCD imager (see the entire patent, including the Fig. 1 disclosure) comprising: a register 10-15 for inputting and outputting photo-generated charge; a storage node 5, connected to receive the photo-generated charge from said register; and at least one gate capacitor 17 connected to the storage node, each gate capacitor being selectively operable to increase a charge storage capacitance of the storage node.

Claim 26 is thus rejected under 35 U.S.C. 102(b) as being anticipated by Tower.

Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over newly cited United States Patent 4,811,371 to Tower together with newly cited United States Patent Application Publication 2004/0251394 to Rhodes et al. (Rhodes).

With respect to independent claim 27, Tower discloses a CCD imager (see the entire patent, including the Fig. 1 disclosure) comprising: a register 10-15 for inputting and outputting photo-generated charge; a storage node 5, connected to receive the photo-generated charge from said register; and at least one gate capacitor 17

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connected to the storage node, each gate capacitor being selectively operable to increase a charge storage capacitance of the storage node.

The difference between claim 27 and Tower is claim 27 recites a system in which the CCD imager is coupled to an imager.

Rhodes teaches using a CCD imager in a system in which the CCD imager is coupled to a processor (see the entire publication, including the Fig. 13 disclosure).

It would have been obvious to one skilled in this art to use Tower's CCD imager in a system in which the CCD imager is coupled to a processor because Rhodes teaches using a CCD imager in a system in which the CCD imager is coupled to a processor.

Claim 27 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Tower together with Rhodes.

With respect to dependent claim 28, Tower's CCD imager further comprises timing and control circuitry 31-35 for generating a timing signal to selectively operate the at least one gate capacitor 17.

Claim 28 is thus rejected under 35 U.S.C. 103(a) as being unpatentable over Tower together with Rhodes.

Claims 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not disclose or suggest the allowable method of forming a pixel taken as a whole, including the gate capacitor.

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Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

*Mark Prenty*  
Mark V. Prenty  
Primary Examiner